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Pesticide Fact Sheet Number 52: Fluchloralin

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Washington, DC

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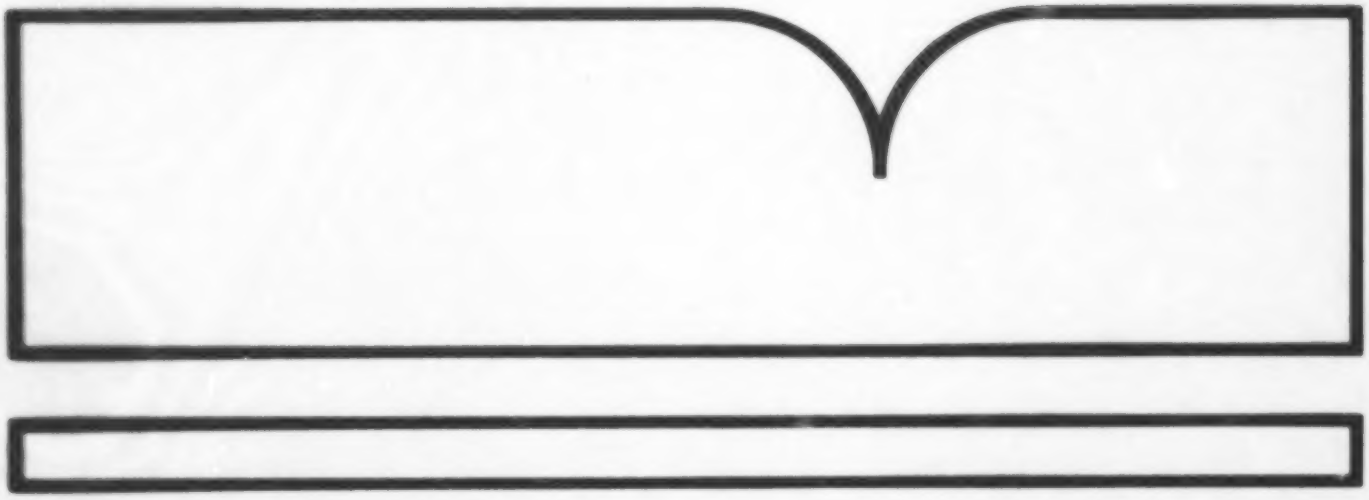

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4. Title and Subtitle: EPA Pesticide Fact Sheets - FLUCHLORALIN No. 52	5. Report Date: Issued 6/30/85
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12. Sponsoring Organization Name and Address: Same as #9	13. Type of Report & Period Covered 14.

15. Supplementary Notes

16. Abstract (Limit: 200 words)

This document contains up-to-date chemical information, including a summary of the Agency's regulatory position and rationale, on a specific pesticide or group of pesticides. A Fact Sheet is issued after one of the following actions has occurred.

1. Issuance or reissuance of a registration standard,
2. Issuance of each special review document,
3. Registration of a significantly changed use pattern,
4. Registration of a new chemical, or
5. An immediate need for information to resolve controversial issues relating to a specific chemical or use pattern.

17. Document Analysis a. Descriptors

Pesticides, regulations, Chemical Information Fact Sheet, Use Patterns, Science Findings

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement: Publicly Available	19. Security Class (This Report) Unclassified	21. No. of Pages 7
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(See ANSI-Z39.18)

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Office of Pesticides and Toxic Substances
Office of Pesticide Programs (TS-788C)
Washington, DC 20460

EPA

Pesticide Fact Sheet

Name of Chemical: FLUCHLORALIN
Reason for Issuance:
Date Issued: June 30, 1985
Fact Sheet Number: 52

1. Description of chemical:

Generic Name: Fluchloralin
Common name: Fluchloralin
Trade name: Basalin®
EPA Shaughnessy Code: 108701
Chemical Abstracts Service (CAS) Number: 33245-39-5
Year of Initial Registration: 1970
Pesticide Type: Herbicide
Chemical family: Chloroaniline
U.S. and Foreign Producers: BASF Wyandotte, Inc.

.. Use patterns and formulations:

Application sites: Dry and succulent peas and beans, cotton, okra, peanuts, soybeans, and sunflowers.
Types of formulations: Emulsifiable concentrate (4 lbs ai per gallon).
Types and Methods of Application: Pre-plant broadcast or banded spray, using ground equipment. Soil incorporation recommended.
Application Rates: 0.5 - 1.5 lbs ai/A on beans (including soybeans), okra, peas, peanuts, and sunflowers.
Usual carriers: Water

3. Science Findings:

Summary science statement: No valid acute or chronic toxicity data are available. One metabolite has shown potential for leaching through soil, but the toxicological properties of this metabolite are unknown. Toxicity to fish is very high.

Chemical characteristics:

Physical state: Crystalline solid
Color: Orange-yellow
Odor: Faint, unusual
Melting point: 42-43°C
Solubility (at 20°C):

Solvent	Solubility
ethyl acetate	>100 g/100 g
benzene	100 g/100 g
cyclohexane	25.1 g/100 g
ether	>100 g/100 g
acetone	>100 g/100 g
chloroform	>100 g/100 g
ethanol	17.7 g/100 g
water	<7 g/100 g

Vapor pressure: 6×10^{-6} mm Hg at 20°C, 2.5×10^{-5} mm Hg at 30°C
Stability: Sensitive to ultraviolet light. Stable in aqueous solution over range of pH 5 to 9.

Toxicological characteristics:

Acute Effects:

Acute Oral LD_{50} - data gap
Acute Dermal LD_{50} - data gap
Dermal Irritation - data gap
Acute Inhalation Toxicity - data gap
Primary Eye Irritation - data gap

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fact sheet

Chronic Effects:

Oncogenicity - data gap
Teratology - data gap
Reproductive Effects - data gap
Mutagenicity - data gap
Feeding Studies - data gap

Major Routes of Exposure: Dermal, ocular, and ingestion

Physiological and Biochemical Behavioral Characteristics:

Foliar absorption: Not applicable - fluchloralin is soil-incorporated.
Translocation: Residues are taken up and translocated through the roots and shoots of cotton and soybean plants. Parent compound and some metabolites have been identified in cotton and soybean foliage following exposure of the roots to fluchloralin.
Mechanism of pesticidal action: Believed to affect seed germination and other physiological growth processes.
Metabolism and persistence in plants and animals: Plant metabolism is not adequately understood. Fluchloralin residues did not transfer to ruminant tissues at exaggerated rates (67X the expected intake by beef cattle). Degradation in animals is step-wise through N-dealkylation and N-hydrolysis.

Environmental Characteristics:

Adsorption and leaching in basic soil types: Fluchloralin (unaged) and fluchloralin residues (aged 30 days) are relatively immobile to slightly mobile in loamy sand and sandy soils, but the degradate 2,6-dinitro-4-trfluoromethylphenol is highly mobile in loamy sand soil and mobile in sandly clay loam soil. Fluchloralin is slightly mobile in runoff from plots (5-12% slope) of silt loam soil.
Microbial breakdown: No data

Loss from photodecomposition and/or volatilization: Fluchloralin photodegrades rapidly (half-life 27 minutes) in water (pH 5.6) when exposed to artificial sunlight. Photodegradation of solid fluchloralin film is slower (half-life 48 hours in artificial sunlight). No valid volatilization data are available.

Bioaccumulation: No valid data

Resultant average persistance: Half-life ranges from <32 to 120 days, depending on soil type.

Half-life in Water: Stable in water over pH range from 5.0 to 9.0, if not exposed to light.

Ecological characteristics:

Hazards to Birds: Data gap

Hazards to Aquatic Invertebrates: Data gap

Hazards to Fish: High toxicity poses potential threat to fish populations. Hazard cannot be evaluated until receipt of certain environmental fate data.

Potential Problems with Endangered Species: USDI has made a jeopardy assessment, finding threats to slackwater darter and eleven freshwater mussels from use of fluchloralin on soybeans.

Tolerance Reassessment:

List of crops and tolerances:

CROP	TOLERANCE (ppm)
Cotton, Seed	0.05N
Peanuts	0.05
Peanuts, forage	0.05
Peanuts, hay	0.05
Peanuts, hulls	0.1
Soybeans	0.05N
Sunflower, seeds	0.05
Vegetables, seed & pod (dry/succulent)	0.05
Vegetables, seed & pod, forage	0.1
Vegetables, seed & pod, hay	0.1

(N=negligible)

List of food contact uses: Beans (dry and succulent), okra, peas (dry and succulent), peanuts, soybeans, sunflower seeds.

Results of tolerance assessment: Current PADI is 0.0026 mg/kg/day, based on a NOEL of 5.250 mg/kg/day (210 ppm) and an LEL = 15.75 mg/kg/day (hemisiderosis in the liver) using a safety factor of 2000. The portion of the PADI currently occupied is <3%. However, the feeding study on which the PADI was based has been declared invalid, and no other toxicological data are available.

Problems known to have occured from use: No PIMS data available.

4. Summary of Regulatory Position and Rationale:

Use Classification: Not classified.

Use, Formulation or Geographic Restrictions: Manufacturing-use products may only be formulated into end-use products intended for use as an herbicide on dry and succulent peas and beans, cotton, okra, peanuts, soybeans, and sunflowers.

Unique Label warning statements:

a) Use Pattern Statements:

Labels of manufacturing-use products must bear the statement:

"For formulation into end-use herbicide products intended only for use on kidney, lima, navy, green, pinto, Great Northern or edible soy beans, blackeyed, cow, field, or garden peas, cotton, okra, peanuts, or sunflowers."

b) Precautionary Statements:

Labels of manufacturing-use products must bear the statement:

"Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or public waters unless this product is specifically identified and addressed in a NPDES

permit. Do not discharge effluent containing this product to sewer systems without notifying the sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA."

The labels of all end-use products must bear the statement:

"Do not apply directly to water. Do not contaminate water by cleaning of equipment or disposal of wastes."

5. Summary of major data gaps

DATA REQUESTED	DUE DATE (# of months after issuance of the Standard)
Statement of Composition	six months
Discussion of Formation of Impurities	six months
Preliminary Analysis	twelve months
Certification of Limits	twelve months
Analytical Methods for Enforcement of Limits	twelve months
Density, Bulk Density, or Specific Gravity	six months
Dissociation constant	six months
Octanol/water Partition Coefficient	six months
pH	six months
Stability	six months
Metabolism in Plants	twenty-four months
Residue - Dill - crop field trials	twenty-four months
Residue - Okra - crop field trials	twenty-four months
Hydrolysis	nine months
Photodegradation - on soil	nine months
Anaerobic Soil	twenty-seven months
Leaching and Adsorption/Desorption	twelve months
Field Dissipation - Soil	twenty-seven months
Accumulation - confined rotational crops	thirty-nine months
Accumulation - field rotational crops	fifty months

DATA REQUESTED	DUE DATE (# of months after issuance of the Standard)
Accumulation - in fish	twelve months
Acute Oral Toxicity	nine months
Acute Dermal Toxicity	nine months
Acute Inhalation Toxicity	nine months
Primary Eye Irritation	nine months
Primary Dermal Irritation	nine months
Dermal Sensitization	nine months
21-Day Dermal Toxicity	twelve months
Chronic Toxicity, Rodent and Non-rodent	fifty months
Oncogenicity - two species	fifty months
Teratogenicity	fifteen months*
Reproduction - 2-generation	thirty-nine months
Gene Mutation	nine months
hromosomal Aberration	twelve months
Other Mechanisms of Mutagenicity	twelve months
General Metabolism	twenty-four months

* A study has been submitted, but not yet reviewed.

6. Contact person at EPA: Robert Taylor, TS-767-C, 401 M Street SW, Washington DC 20460
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DISCLAIMER: The information presented in this Chemical Information Fact Sheet is for informational purposes only and may not be used to fulfill data requirements for pesticide registration and reregistration.